aware. This wave was composed of seven oscillations, three at each side of the central one; and the barometric curve presented a very symmetrical character. It culminated on March 9th, when at 9 A. M. the barometer attained the height of 30·751 inches. The wind was easterly during the whole transit, but varied very irregularly between SE. and NE.

The barometric curve of March, 1847, is remarkable for its regularity, and its near approach to symmetry. The wave commenced its passage over Dublin Feb. 18, culminated March 2, and passed off March 15, its transit occupying twenty-five days. The highest pressure (March 2, 7 P. M.) was 30·692 inches. The central portion of the curve presenting a great regularity of form, and predominating greatly over the minor oscillations, this wave seems admirably suited to the examination of the relation between the molecular movement of the air and the pressure. The principal features of the phenomenon were a steady wind from SE. (Feb. 22–26), preceding the rise of the principal oscillation. This was followed (Feb. 28–March 6) by a steady wind from NE. during its transit, and (March 7–8) by a NW. wind after its passage. The oscillation is also remarkable for a retrograde movement of the wind through nearly the whole compass. The wave commenced and ended with a gale; the intensity of the wind increased also before and after the principal oscillation.

The writer concluded by some remarks upon the bearing of the facts noticed upon the theory of wave-propagation.

The following notice on the manufacture of sulphuric acid, by Professor Edmund Davy, was communicated by Professor Graves.

"My attention has been for some time directed to the consideration and examination of the different circumstances under which sulphuric acid may be formed; as by the use of the nitrates of potash or soda, and nitric acid or nitrous acid gas,

with sulphur. I have also particularly directed my attention to the agency of atmospheric air on burning sulphur, and a number of the sulphurets; and the action of oxygen gas on sulphur under different circumstances. The time I have devoted to these inquiries, though considerable, has not been sufficient to complete them: but as I can only pursue the subject at short intervals of leisure, I trust I shall be excused for bringing before the Academy results, which, though imperfect, appear to me to be both novel and important.

"Sulphuric acid, from its vast importance to our arts and manufactures, has, from time to time (as is well known), engaged much scientific attention. Some of the most distinguished chemists of Europe have made it the subject of elaborate inquiry and investigation; yet it is a remarkable fact, that they appear to me to have overlooked the manner in which it is formed under different circumstances; and their authority, it is to be feared, checked inquiry, and tended to confirm and perpetuate error. It is a received opinion that sulphuric acid cannot be made directly from its elements, sulphur and oxygen, but is produced by causing sulphurous acid to unite with an additional equivalent of oxygen in contact with moisture or water. That opinion, however, is the result of imperfect observation, and is not founded in fact. Sulphuric acid may be made with facility from its elements, under different circumstances. Thus, if we burn sulphur in atmospheric air at the lowest possible temperature, in contact with glass, porcelain, metals, &c., the products will be sulphurous and sulphuric acids. If we burn sulphur in air at higher temperatures, in contact with the same substances, the results will be similar, but the quantity of sulphuric acid produced will be greater than would be formed at lower degrees of heat.

"Sulphurous acid is considered to be the sole product arising from the combustion of sulphur in dry oxygen gas, or atmospheric air. I am satisfied this is not the fact. I have repeatedly burned sulphur in oxygen gas under different cir-

cumstances, and I have uniformly obtained sulphurous and sulphuric acids. I will not refer to any particular experiments in which these acids were produced directly from oxygen gas and sulphur in a dry state, as I am desirous of repeating them at my first leisure, under more favourable circumstances.

"I have repeatedly found that by burning the vapour of sulphur in flasks and retorts, under circumstances in which it would be difficult to admit the presence of any appreciable quantity of water, sulphuric acid as well as sulphurous acid is copiously produced.

"In the well-known method of making sulphurous acid gas, by heating a mixture of sulphur and oxide of manganese, it is supposed no sulphuric acid is formed. This is a mistake. Sulphate of manganese is produced, together with a rich brown pigment, probably the sesquioxide. This sulphate is employed in dyeing and calico printing, and is now prepared by more complicated processes. In experiments with the Saxon and other varieties of manganese and sulphur, I have obtained pure sulphates of manganese. And this method seems to offer the chemist one of the readiest modes of obtaining the compounds of manganese in a state of purity, and of detecting it in analyses.

"The application of the foregoing facts to the manufacture of sulphuric acid seems obvious, but I hope in a subsequent communication to bring that subject before the Academy.

"I cannot close this communication without acknowledging the assistance I received in my experiments from my intelligent young friend and pupil, Mr. George Keogh, and my son, Edmund William Davy."

Mr. Robert Mallet made the following observations on Mr. Davy's paper:

Mr. Robert Mallet stated that about sixteen years since a gentleman named Talbot called on him, and mentioned the fact that sulphur burned in air produced both sulphuric and sulphurous acids, which he proposed to take advantage of in a new mode of manufacturing the sulphuric acid of commerce.

In conjunction with this gentleman, Mr. Mallet expended a good deal of money in experiments as to the feasibility of the proposed method. The apparatus, briefly, consisted in a chamber in which sulphur could be burned at as high a temperature as was consistent with the non-volatilization of much of it; this communicated with the usual lead vitriol chamber by a large tube, dipping a little under the surface of the water therein. By means of a powerful air-pump, or fan, a partial vacuum was now produced in the vitriol chamber, which caused a draught through the chamber in which the sulphur was burned, the gases from which, bubbling up through the water in the vitriol chamber, were in part condensed in the water.

Abundance of a sour liquor was obtained; but it was found that, under the best possible conditions, the amount of sulphuric acid formed was so very small in proportion to that of the vast volume of sulphurous acid generated, and which was all wasted, that the process was valueless.

The higher the temperature at which the sulphur was burned, the greater was the proportion of sulphuric acid formed; but the limit to this was found to be such a draught through the apparatus as would blow out the feeble flame of the burning sulphur; and at this point the per centage of sulphuric acid was so small that Mr. R. Mallet had satisfied himself the process could not be advantageously adopted. The communication of Professor Davy was valuable, as placing upon record (he believed for the first time) a fact theoretically passed over or misstated in chemical authors, but was not likely to lead to a manufacturing improvement.